SHARP
Safety & Health Assessment & Research for Prevention
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Innovations in Washington

Occupational Safety & Health Research

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IN THIS ISSUE

Carpal Tunnel Syndrome

CTS burden extends far beyond medical & wage costs

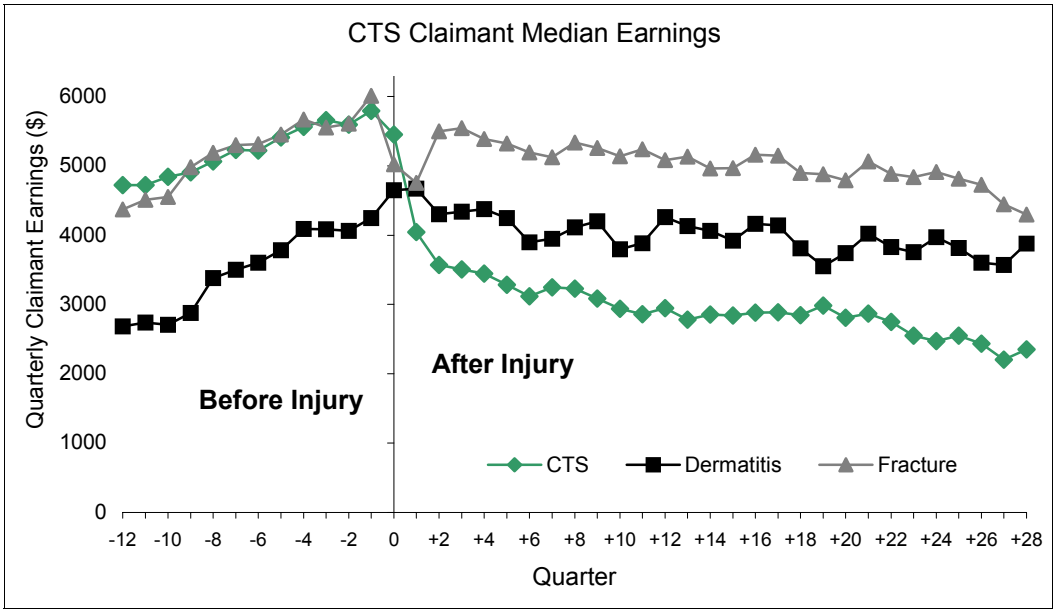
Carpal Tunnel Syndrome (CTS) is among the most costly of all occupational illnesses, with Washington State Fund claims averaging $12,860 in direct costs from 1991-99, totaling over a quarter of a billion dollars.

It has long been thought that the burden of this illness extends far beyond these direct medical and wage replacement costs to include long-term lost earning potential, continuing pain and loss of function, and impacts upon the workers' households. The CTS Burden project measures these additional dimensions.

To get at long-term lost productivity, we compared the earnings of CTS claimants to those of workers with either compensable fractures of the upper extremity or non-compensable dermatitis whose claims were filed in either 1993 or 1994.

Claimants' earnings both before and after filing a claim were tracked and other measures of social and economic burden were obtained through an extensive survey of CTS claimants and the two comparison groups of claimants. The survey was administered by telephone in 1999.

This survey covered current physical/psychological status, medical treatments, respondents' current and past work/income, work adjustments made by domestic partners and benefits received by respondents from agencies other than the Department of Labor and Industries.



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Department of LABOR AND INDUSTRIES

CTS burden

Continued from page 1.

Comparison of the three groups shows clearly that, while the earnings of CTS claimants were at least as high as the two comparison groups prior to injury, median earnings fell well below those of other claimants after injury — and their earnings deficit grows over time, up to seven years after their claim.

The other dimensions of social and economic burden, measured by survey, show results which accord with what we might expect from the above.

Additionally, the survey measured respondents' physical and psychological well-being, and on both parts, the CTS claimants scored lower than either fracture or dermatitis claimants, particularly on their physical well-being.

Further analysis of the earnings data will be explored to see how this pattern varies by age, gender, and industry of the claimant, and also to what extent the decline in earnings is due to a fall in hours worked or to lower wage rates.

It is expected that a complete analysis of the survey results will shed more light on the many different impacts which worker injury has upon their households.

Information gained from this project will be shared with employers' associations, unions and health and safety professionals in an effort to document the full extent of social burden from this illness.

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SHARP is Research for Action!

Our 2003 issue of *Innovations* has a new name, *Innovations in Washington Occupational Safety & Health Research*, yet its purpose remains the same — to highlight the progress of many of SHARP's new and continuing research projects.

Our mission is to conduct research, monitoring, and demonstration projects that promote healthy work environments and prevent workplace injuries and illnesses.

We conduct our work in collaboration with employers, unions, industry associations, health care providers, and other organizations.

This newsletter is one way for us to share information and research findings with all those who have partnered with us to help ensure the safety, health, and well-being of Washington workers and their families.

In this issue we have selected several of our research projects to share with you. To obtain more information on these or any of our other projects, we invite you to visit us at *www.LNI.wa.gov/sharp*.

Many of our educational materials, technical reports, and other publications are available online.

If you have any questions, please feel free to give us a call toll-free at 1-888-66-SHARP.

We're interested in any comments or suggestions you may have to guide our future research activities.

We hope you find the newsletter informative.

- Stephen Bao, 2003 Editor

See last page for staff listing.

Feedback helps SHARP develop materials employers and employees need — and use

SHARP develops educational materials for employers and employees that provide strategies for preventing illnesses and injuries.

Evaluation is an important step in determining if these materials are helpful and if workplace changes occur as a result of the educational materials.

In 2001, *Prevention of Hand Dermatitis in the Health Care Setting,* was sent to over 600 Washington health care providers.

We sent a feedback survey to all recipients to evaluate whether the educational booklet was a valuable resource.

We received 158 completed surveys and 17 partially completed surveys.

All respondents said the booklet is clearly written and easily understood, and 99% believed it provides practical tips for preventing dermatitis.

The booklet prompted individuals to check their moisturizers, gloves, and hand washing agents and consider making changes to the products used in their facilities.

Additionally, we learned that respondents prefer brief written materials in the mail — 73% said they wanted no more than two pages and 80% chose to have future materials mailed.

SHARP uses feedback of this nature to improve the educational materials we develop.

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See Report No. 66-7-2002.

Learning from workers with asthma

Through SHARP's work-related asthma program, we hope to learn from workers diagnosed with work-related asthma in order to prevent other workers from becoming sick.

Between October 2001 and July 2002, we conducted phone interviews with 134 workers in Washington. These interviews allowed us to classify workers according to the type of asthma they have.

In the end, 50% had occupational asthma, 38% had work-aggravated asthma, and 12% had Reactive Airways Dysfunction Syndrome (RADS).

- *Occupational asthma* is caused by workplace exposures in workers without a prior history of asthma.
- *Work-aggravated asthma* is when a worker's pre-existing asthma is exacerbated by workplace exposures.
- *RADS* occurs when a worker with no prior history of asthma develops symptoms immediately following a single, large exposure.

Occupational asthma cases were more likely to be male and less likely to have a personal history of allergies or a family history of asthma and allergies than workers with work-aggravated asthma.

Workers with occupational asthma were also less likely to remain employed at the workplaces where they developed asthma, compared to workers with work-aggravated asthma.

We are continuing to conduct phone interviews with work-related asthma cases in the hopes of learning more about work-related asthma in Washington.

Our next step is to work with employers where cases have been identified to assess current exposures, and develop and evaluate solutions for eliminating or reducing them.

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Radiator repair businesses need help reducing workers' lead exposures

SHARP administers state's adult blood lead registry

Exposure to lead can cause serious health problems, such as damage to the brain, kidneys, and reproductive system. Despite the requirements for blood lead level (BLL) testing, there is good evidence to suggest many lead-exposed workers are not tested.

Workers in radiator repair shops have some of the highest BLLs of all the workers in Washington. Recognizing the need for education and outreach in this industry, SHARP mailed a questionnaire to all radiator repair businesses in the state to learn more about how workers are overexposed to lead.

SHARP found that the number of radiator repair shops that perform the types of repairs that can cause lead poisoning has declined in recent years.

This is because new vehicles are increasingly equipped with lead-free, plastic-aluminum radiators, rather than the older copper-brass kind.

However, many of the shops that continue to recore, clean, or rod-out copper-brass radiators were unaware of the requirements of the Lead Standard.

Only 16 percent had performed air lead testing and 36 percent had provided blood lead testing for their employees over the previous year.

Other workplace health & safety practices were found to be inadequate in many radiator repair shops. Clearly, this industry deserves education and outreach attention. SHARP is working with radiator shops and their national association to develop appropriate training materials to reduce lead overexposure and poisoning in radiator mechanics.

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Building healthy workplaces

Interventions focus on *best practices* that help reduce injury and illness

In 1999, the Healthy Workplaces project began identifying factors that contribute to healthy workplaces. Food processing and the millwork, furniture and fixtures industries were the first industries that we studied.

Our interventions aim to prevent or reduce work-related injuries and illnesses by using information collected from four areas: existing data, industry-based employer survey, company site visits, and collaboration with business and trade associations. We use this information to identify 'best practices' in safety and health management in the industry.

For the food processing industry, we identified 'best practices' in the areas of slip prevention, noise control, machine guarding, ergonomic solutions, and safety and health management. A document summarizing these 'best practices' was developed and mailed to all food processing companies in the state.

This past October, we collaborated with the Kitchen Cabinet Makers Association (KCMA) at their national conference. We worked together to provide attendees with information on safety and health 'best practices' and workplace ergonomic assessments.

The electrical industry sector is our third Healthy Workplaces study and should get underway by mid-year.

OS&HR

Drowning dangers on agricultural lands

Between 1997-2000, 10 adult workers in Washington drowned doing agriculture-related work. Acres of orchards, wheat, and vegetables conceal more drowning hazards than you may think.

Irrigation ditches contain hidden dangers.

Irrigation systems pump, transport, and store large amounts of water to irrigate crops.

Workers may be responsible for installing and maintaining these irrigation resources.

Because of this, agricultural workers often must be near sources of water that can present a risk of drowning.

To address this issue, SHARP developed outreach materials in English and Spanish that highlight the hazards and give recommendations to help prevent these types of drownings.

We sent materials to a number of agricultural organizations for their use and distribution, and placed the information on our web site at www.LNI.wa.gov/sharp/face.

SHARP tracks and investigates workplace fatalities under the federally funded Fatality Assessment and Control Evaluation (FACE) Program.

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See FACE Fatal Facts, Report No. 47-2-02, May 2002.

SHARP looks at enforcement and consultation

WISHA services, as proscribed by the Washington Industrial Safety and Health Act, provide inspections and consultation visits aimed at workplace health and safety issues.

Enforcement inspections encourage safe workplaces and prevent injuries and illnesses through deterrence**.**

Consultation visits occur when an employer requests WISHA's help to correct potential hazards and rule violations without the threat of penalty**.**

The effectiveness of these two activities remains an important issue to the Department of Labor and Industry and the businesses and workers it serves.

Until recently, only limited analysis was conducted to examine the relationship between claims rates and WISHA enforcement and consultation activity.

SHARP has developed a method to examine this association by calculating compensable claims rates, hours, and WISHA activity for each employer account with a single business location reporting payroll hours for every quarter from 1997-2000, and with more than 10 employees.

SHARP's first evaluation was done in 2001. The analysis found a one-year reduction in claims rates of about 27% at fixed-site workplaces receiving a WISHA enforcement visit and about a 16% reduction at non-fixed-site workplaces, such as construction.

This is in contrast to work sites not receiving any WISHA visits, where claims fell only by 3% to 4%.

No significant results were found for consultation visits, perhaps owing to the relatively small number of these visits occurring at businesses that satisfied the selection criteria during the study period.

SHARP is preparing to extend the evaluation to examine differences over two years.

See next page for graph.

Enforcement and consultation

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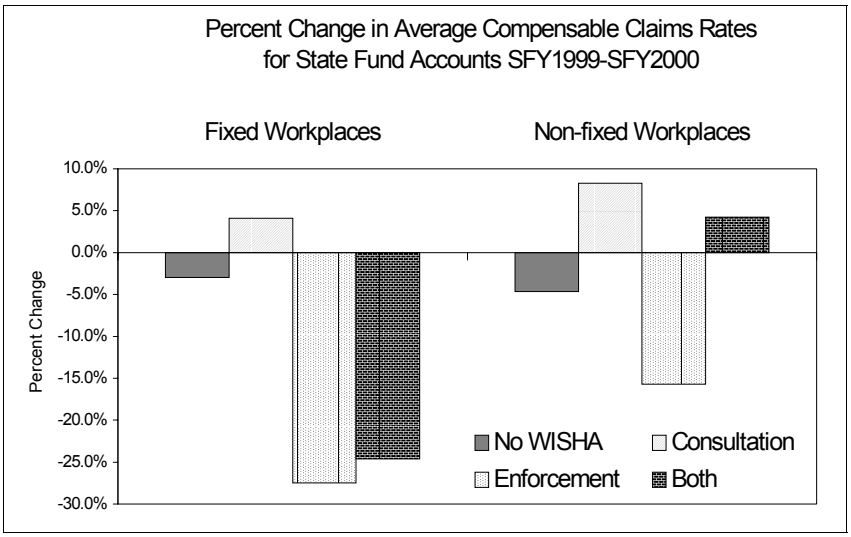


The analysis found a 27% reduction in claims rates at fixed-site workplaces that had a WISHA enforcement visit and 16% reduction at non-fixed-site workplaces.

OS&HR

Zero-lift: nursing home successes

For years, nursing homes have had high claims rates for back and shoulder work-related musculoskeletal disorders (WMSDs).

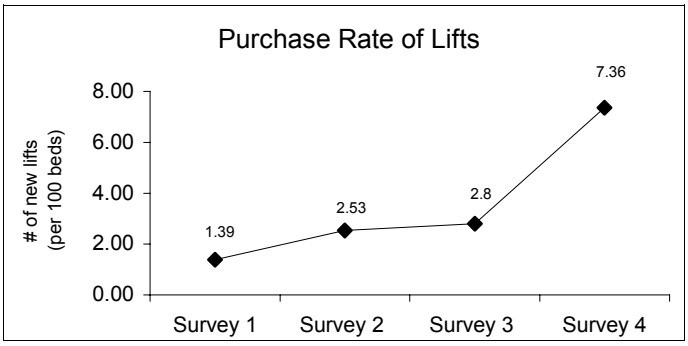
In 1998, the Department of Labor and Industry partnered with the Washington Health Care Association (WHCA) and Washington Association of Housing and Services for the Aging (WAHSA) to address these issues.

SHARP received federal funding to evaluate the effects of a *zero-lift* initiative on reducing lifting hazards and workers compensation claims rates.

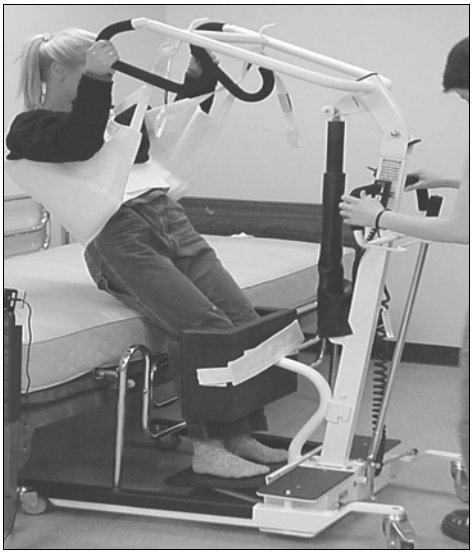
Four industry-wide surveys were conducted between 1998-2002 to assess implementation of *zero-lift* environments, and Workers' Compensation claims rates were tracked from 1995-2001.

Zero-lift environments have at least five basic components:

- Enough of the right kind of lifting and moving equipment for the resident population.
- Training for all nursing staff in proper use of the equipment.
- Policies and procedures in place that expect that that equipment will be used.
- Management commitment and employee involvement in implementing and maintaining a zero-lift environment.
- Injury investigation and medical case management for injured workers.



There was a significant increase in new lifting equipment purchased over the study period.



Patient lifting devices help reduce lifting hazards.

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Zero-lift

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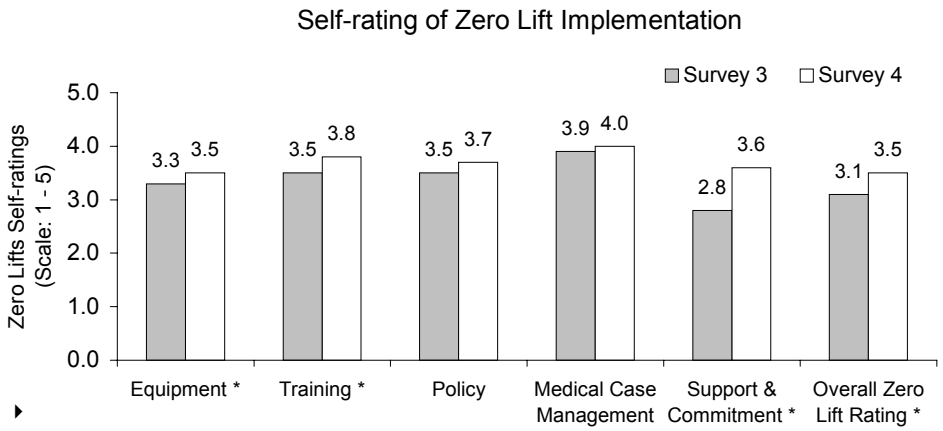
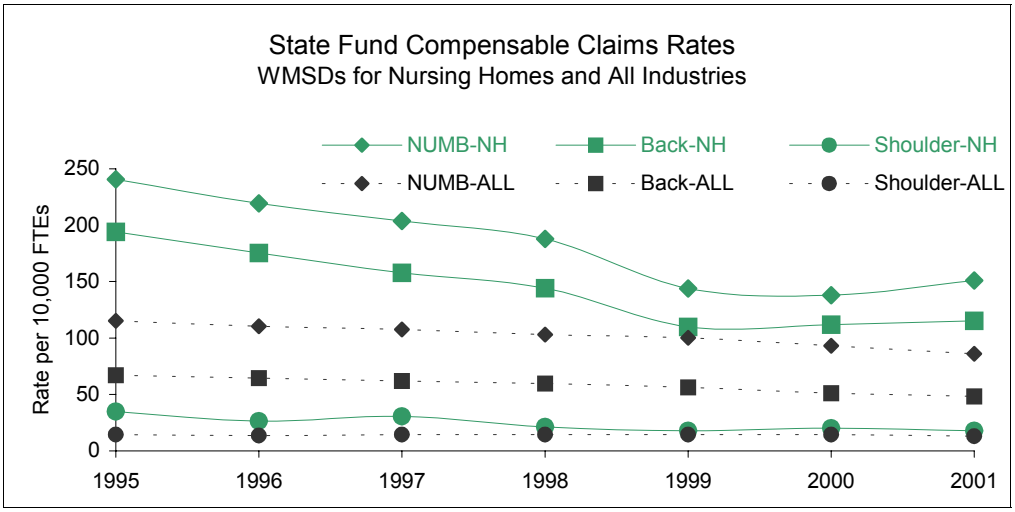
Nursing homes rated themselves on the degree to which they implemented all the components of *zero-lift,* demonstrating improvement between 2000 and 2002.



Statistically significant differences between surveys.



Workers compensation claims rates for work-related musculoskeletal disorders of the neck, back and upper extremity (NUMB in the chart) decreased significantly over the study period.

A full report will be available in early 2003.

Congratulations to Washington nursing homes!

OS&H

Upper extremity musculoskeletal disorders study

An enormous and significant undertaking

SHARP is in the second year of a research study to improve our understanding of the relationship between different risk factors in the workplace and the development or exacerbation of upper extremity musculoskeletal disorders (UEMSDs), such as rotator cuff syndrome, tennis elbow, and carpal tunnel syndrome.

The goal of this five-year study is to add to the scientific literature regarding musculoskeletal disorders to more precisely determine *how much is too much*.

We follow Washington workers for three years to compare the incidence and persistence of UEMSDs as a function of the individual, physical load, and psychosocial factors. We also look at symptoms, clinical findings, and compensated injury claims during this period.

We are currently visiting 13 different workplaces in the state and have over 750 participants that are categorized as either new workers, previously exposed symptomatic workers, or health workers.

Our workplaces are manufacturing companies producing electronics, wood products, construction products, medical and exercise equipment, and several organizations in the health-care industry.

Preliminary analysis for the 660 baseline participants shows us that **many workers are working hurt**.

The graph on page 8 illustrates the percent of people reporting right shoulder pain. Almost 10% of our participants have right shoulder problems on both physical exam and interview, yet fewer than 5% have filed a Workers' Compensation

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UEMSD study

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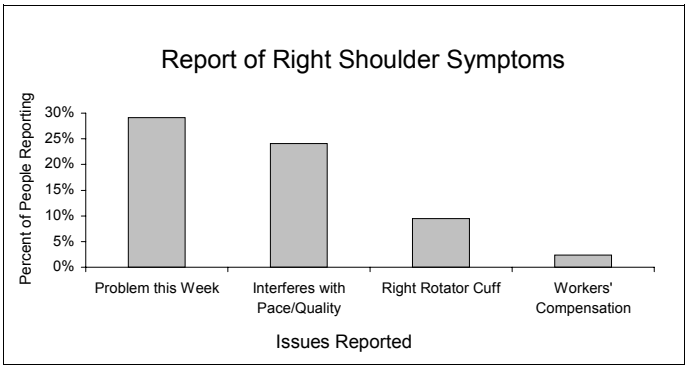
claim. This possible under-reporting is one of the many issues we will explore in the coming years.

When surveyed, about 30% of participants reported right shoulder pain within the last seven days, and many felt that their injuries interfer with the pace or quality of their work.

Initial assessment of six of our 13 workplaces suggests that while some heavy manual handling has been eliminated through engineering controls, high hand forces, repetitive upper extremity movements, and awkward postures remain.



Injury rates are high in many of the jobs chosen for study. The cross-sectional data from year one will be important in characterizing current exposures and health effects in a wide range of manufacturing industries.

The detailed exposure assessment methods developed for this study will be useful in developing more generic exposure assessment methods for practitioners under different conditions.

Cultural issues are another interesting aspect of this study. We have 13 different languages and over 20 countries represented in our study population. We will explore cultural issues and their effects in our study in the future.

Musculoskeletal disorders cost Washington employers $411 million each year, not to mention the emotional and financial costs to employees who are hurt every year by these preventable disorders.

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SHARP has worked with . . .

Association of Washington Business · American Conference of Governmental Industrial Hygienists · American Industrial Hygiene Association · American National Standards Institute · American Public Health Association · Hops Growers Association · Northwest Association of Occupational & Environmental Medicine · Northwest Wall & Ceiling Industry Trust Fund · United Brotherhood of Carpenters and Joiners of America · United Food & Commercial Workers · United Steel Workers of America · Washington Health Care Association · Washington State Association of Occupational Health Nurses · Washington State Labor Council · Washington State Medical Association · Washington State Nursing Association · Western Council of Industrial Workers · Western Wood Products Association · WISHA Monitoring Committee

Apple growers · Farmworkers · General contractors · Poultry processors · Roofing contractors · Shellfish harvesters · County and city health departments Firing ranges · Hospitals · Nursing homes · Radiator repair shops · Tree nurseries

Manufacturers of advanced composite material · aluminum · automotive parts · batteries · cabinets · electronics · exercise equipment · lumber and plywood · medical equipment · telecommunications · windows · wood products

King County Local Hazardous Waste Management Program · Ohio State University · The Evergreen State College · TOC Management Services · U.S. Geological Survey · Occupational Safety and Health Administration · National Institute of Occupational Safety and Health · Pacific Northwest Agricultural Safety and Health Center · University of Washington Northwest Center for Occupational Health and Safety · Washington State Departments of Community, Trade and Economic Development; Corrections; Ecology; Employment Security; Health; Revenue; and Social and Health Services · Washington State University

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